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**A FIN-BACK WHALE (*BALÆNOPTERA*) RECENTLY STRANDED
ON THE NEW JERSEY COAST.**

BY E. D. COPE.

In the month of October of the year 1891, the carcass of a fin-back whale came ashore on the beach in front of the town of Ocean City, Cape May County, New Jersey. The attention of some of the members of the Academy of Natural Sciences of Philadelphia having been called to the circumstance, Professor Angelo Heilprin was authorized to take measures to secure the skeleton for the museum of the Academy. He was successful in obtaining possession of the carcass, and with the aid of Dr. S. G. Dixon of the Academy, was enabled to prepare the skeleton for transportation. This work was supervised by Mr. J. C. Ives of the Academy, to whom I am especially indebted for the accompanying description of the external appearance of the monster.

An examination of the animal on the beach, and a subsequent study of the skeleton on the premises of the Academy of Natural Sciences, has shown that it presents characters of considerable interest to the naturalist. Its first ribs are simple, which circumstance refers it to the true genus *Balænoptera* of Gray and Flower, as distinguished from *Sibbaldius* of these authors. Whether the deeply bifurcate rib characteristic of the latter genus is an abnormality or not, as maintained by Prof. Van Beneden, will claim attention at another time. Meanwhile I give the following description of the external characters, drawn up by Mr. J. C. Ives.

“The following measurements were made by Mr. F. W. True and myself. The whale was lying on its back, somewhat turned to the left side and partially buried in the sand. The measurements of the paired organs were made on the right side which was better exposed than the left.

Length from the tip of the snout to the hinder border of the tail along the middle line of the body, 66 ft., 11 in.

From the symphysis of the lower jaw to the angle of the mouth, along the curve, 16 ft., 10 in.

Distance of the ear behind the angle of the mouth, 3 ft., 6 in.

Length of the ear slit, 2½ in.

Length of the flipper along the central line from the shoulder to the tip, 7 ft., 4 in.

Along the lower margin, 8 ft., 3 in.

Along the upper margin, 6 ft.

Greatest width of the flipper, 2 ft., 2 in.

Distance from the anus to the navel, 10 ft.

Distance from the end of the tail to the anus, 20 ft.

Length of the dorsal fin, 1 foot.

Height of the same, 5 in.

Distance of the dorsal fin from the insertion of the flukes of the tail, 12 ft., 5 in.

Distance from the end of the tail to the end of the corrugations on the belly, 28 ft.

Width of the tail across the flukes, 14 ft., 10 in.

There were about 86 corrugations on the belly.

There were no humps behind the dorsal fin nor within eight feet of the dorsal ridge exposed in front of it.

The epidermis of the entire exposed portion with the exception of the under surface of the flippers was purplish slate color, mottled with large blotches of a lighter tint of the same color; on the under surface of the belly these lighter blotches were streaked with white. The under surface of the flippers, i. e., the surface next the body, was white. Nearly all the epidermis of the flukes had been torn off, but it appeared to have been of the general color of the body."

From the preceding it may be learned that the pectoral fin is about one-ninth the total length, and that the dorsal fin marks a point about one-fourth the length from the posterior border of the flukes to the end of the muzzle. In both these characters it agrees with *Balænoptera musculus*. In the dark color of the inferior surface it differs from this species, and agrees with *B. sibbaldii* Gray. In the white color of the internal face of the pectoral it agrees with the specimen described by me, under the name of *Sibbaldius tectirostris*,¹ and differs from the individual described by Professor T. Dwight² as *Balænoptera musculus* which came ashore near Boston, Mass. The under side of the pectoral is described as being black in this whale.

An examination of the osteology gives the following results. Vertebrae; C. 7; D. 15; L. 17; C. 23; total 62. Of the cervicals only the axis has an entire vertebrarterial foramen, and this is enclosed by a wide confluence of the diapophysis and parapophysis.

¹ Proceedings Academy Nat. Sci. Philada. 1869, p. 17.

² Memoirs Boston Soc. Nat. History, II, 1871, p. 203.

The diapophyses are distinct in all of the other cervicals, being slightly decurved and rather elongate, but they do not approach the parapophyses. The parapophyses are long on the sixth cervical, but are totally wanting on the seventh. There are fifteen pairs of ribs. Of these the heads of the first pair are absolutely simple; those of the second, third and fourth, have a well developed head, besides the tuberculum. The scapula has the usual antero-posterior elongation, with well developed acromion and coracoid. The humerus still has the head in the distinct epiphysial stage. The phalanges, commencing with the internal digit (no. 2) number, 4-6-5-3. These were carefully preserved by Mr. Ives, and the number is probably correct, with a possibility that there may have been six phalanges in the fourth digit.

The maxillaries and premaxillaries were removed from the skull in order to facilitate their transportation. The former have the acuminate outline of those of *M. musculus*, rather than that of *M. sibbaldii*. The nasal bones have a parallogrammic superior outline, but are very convex in the fore and aft direction, the surface descending forwards. They are flat posteriorly; at the middle the adjacent edges are raised, but at the distal end the external edges are raised, so that the superior surface is concave in the transverse direction. The mandibular ramus is quite convex outwards, and the coronoid process is very elevated. The angle is separated from the condyle by an oblique groove, but it does not project beyond it. The otic bulla is flat on the internal side, and convex on the external side, the convexity separated by a groove from the internal edge.

MEASUREMENTS.

	cm.
Length of maxillary above, on premaxillary edge;	376
Length from posterior end of maxillary near nasals to posterior angle of squamosal;	150
Width of maxillary at middle;	50.5
Width of premaxillary at middle;	19
Mandibular ramus; length on curve;	500.5
Mandibular ramus; depth of condyle;	37.8
Mandibular ramus; depth at coronoid;	77
Mandibular ramus; depth at middle of length;	33
Mandibular ramus; width at middle of length;	21
Mandibular ramus; depth at distal end;	29

Otic bulla; diameters	{ longitudinal;	14
	{ transverse;	7.2
	{ vertical at meatus;	10
Scapula; diameters	{ anteroposterior;	97.5
	{ vertical;	78
Atlas, transverse diameter (total);		83
Axis, centrum diameters	{ vertical;	27
	{ transverse;	38
Diameters diapapophysis	{ vertical;	40
	{ transverse;	30
Vertebral canal, diameters	{ vertical;	15.5
	{ transverse;	15.5
Seventh cervical; diameters centrum	{ vertical;	28
	{ transverse;	35
Tenth dorsal; diameters centrum	{ vertical;	29
	{ transverse;	37
Length diapophysis of tenth dorsal;		39
First caudal; diameters centrum	{ vertical;	36
	{ transverse;	42
Humerus	{ length;	47
	{ long diameter at middle of shaft;	26
Ulna, length;		90.5
Radius, length;		90
Chord of first rib, including extremities;		130

A comparison of the characters of the skeleton above enumerated leads to the following results. The non-union of the diapophyses and parapophyses of the cervical vertebræ posterior to the second, is remarkable in view of the size of the individual. These processes are confluent distally in the adult *Balanoptera musculus* according to authors, as far as the fifth and sometimes sixth cervical inclusive. They are so in three specimens described by Prof. Flower¹, one by Dr. Murie,² and two by Dr. Gray.³ This is even the case with the young specimen of 48 feet in length described by Professor Dwight. In the very young they are distinct throughout. In the two specimens which were stranded on the Orkney Islands, described by Mr. Heddle, which were also about fifty feet long, none of the cervical apophyses were united except those of the axis, as in our

¹ Proc. Zool. Soc. London, 1869, p. 604.

² Loc. cit. 1865, p. 210.

³ Loc. cit. 1856, p. 187.

specimen. On this and other grounds, Dr. J. E. Gray referred these to a species distinct from *B. musculus* under the name of *B. duguidii*.¹ Later authors have not adopted this species. The cervicals are in the same condition in *Sibbaldius tectirostris* from the coast of Maryland. The same structure is persistent in *B. sibbaldii*, in spite of its great dimensions. It is remarkable that the Ocean City specimen, which is about 67 feet long, nearly the adult size of *B. musculus*, should still retain this character of immaturity. It suggests the enquiry whether there may not be a species of fin-back in the Atlantic possessing characters of both the species *B. musculus* and *B. sibbaldii*.

It has been stated already that the phalanges number 4-6-5-3. Professors Flower and Van Beneden give the numbers for *B. musculus* as 2-5-5-3; a noteworthy difference. Professor Dwight's specimen, however, has 4-6-5-2, which comes much nearer to our specimen. The question arises, are the numbers given to *B. musculus* by the authors quoted, derived from defective preparations? The figure in Gervais and Van Beneden's *Osteographie des Cétacés*,³ conveys the impression that a phalange or two has been lost from the digit II. Should the numbers given prove to be correct, the increased numbers of phalanges in the American specimens again points to resemblance to *B. sibbaldii*, where Flower gives the numbers as 4-7-7-4.

In conclusion, it appears that the Ocean City whale agrees with *Balænoptera musculus* in the form of the head, number of vertebræ and ribs, proportions of pectoral fin and position of dorsal fin; but that it differs from this species and agrees with *B. sibbaldii* in the size, color, and in structure of the cervical vertebræ; and that it is intermediate between the two, as described by authors, in the numbers of the phalanges of the manus. It remains to be ascertained whether these characters indicate another species, and if so, whether the names *duguidii* or *tectirostris* are applicable to it.

¹ Catalogue of Seals and Whales in the British Museum, 1866, p. 144.

² Loc. cit., p. 158.

³ Pls. xii and xiii, fig. 20.